

### Abstract Of The Disclosure

5 Aerogels having a high density of hydroxyl groups and a more uniform pore size with fewer bottlenecks are described. The aerogel is exposed to a mixture of a supercritical fluid and water, whereupon the aerogel forms a high density of hydroxyl groups. The process also relaxes the aerogel into a more open uniform internal structure, in a process referred to as hydroetching. The hydroetching process removes bottlenecks from the aerogels, and forms the hydrogels into more standard pore sizes while preserving their high surface area.